WHAT IS CLAIMED IS:

1. A method of implementing a resonator in rate gyro mode, the resonator comprising a vibrating member adapted to be set into vibration at a resonant frequency under the effect of electrostatic forces generated by electrodes placed facing a portion of the vibrating member, the method comprising the steps of exciting the vibrating member by means of a combination of control signals comprising an amplitude control signal, a precession control signal, and an amplitude-modulated quadrature control signal, of measuring vibration of the vibrating member, and of demodulating the vibration at the resonant frequency of the vibrating member, wherein the precession control signal is applied at a frequency that is twice the resonant frequency.

2. A method according to claim 1, wherein, during a stage of setting into vibration, the amplitude control signal is applied at the resonant frequency of the vibrating member, and during a stage of sustaining vibration, the amplitude control signal is applied at a frequency twice the resonant frequency.

3. A method according to claim 2, wherein, during the sustaining stage, the amplitude control signal is applied to at least half of the electrodes distributed symmetrically about the vibrating member, or to the vibrating member itself.

4. A method according to claim 1, wherein the amplitude control signal is applied in such a manner that the vibration of the vibrating member is oriented so that a vibration node is in register with each gap between two electrodes.

5. A method according to claim 3, wherein the amplitude control signal is applied in such a manner that the

vibration of the vibrating member is oriented so that a vibration node is in register with each gap between two electrodes, and wherein, at least during the stage of setting into vibration, the amplitude control signal is applied to at least two electrodes that are modally in quadrature relative to each other.

6. A method according to claim 1, wherein the quadrature control signal is a DC signal applied to electrodes common to the amplitude control signal and to the precession control signal.

7. A method of implementing a resonator in free gyro mode, the resonator comprising a vibrating member adapted to be set into vibration at a resonant frequency under the effect of electrostatic forces generated by electrodes disposed facing a portion of the vibrating member, the method comprising the steps of exciting the vibrating member by means of a combination of control signals comprising, during a sustaining stage, an amplitude control signal at a frequency twice the resonant frequency of the vibrating member, and a DC quadrature control signal, both control signals being amplitude-modulated, of measuring vibration of the vibrating member, and of demodulating the vibration at the resonant frequency of the vibrating member, wherein the amplitude control signals and the quadrature control signals are applied in quadrature to common electrodes.

8. A method according to claim 7, wherein the amplitude control signal is applied to at least half of the electrodes that are distributed in symmetrical manner.

9. A method according to claim 7, wherein the quadrature control signal is applied to electrodes on either side of a vibration node.

10. A method of implementing a resonator in free gyro mode, the resonator comprising a vibrating member adapted to be set into vibration at a resonant frequency by means of a combination of control signals comprising, during a sustaining stage, an amplitude control signal at a frequency twice the resonant frequency of the vibrating member, and a DC quadrature control signal, both control signals being amplitude-modulated, the method including the steps of applying the amplitude control signal to the vibrating member itself, of applying the quadrature control signal to the electrodes disposed facing the vibrating member, and of simultaneously detecting vibration of the vibrating member using the same electrodes.

11. A method according to claim 10, wherein the quadrature control signal is applied to electrodes on either side of a vibration node of the vibrating member.

12. A method according to claim 11, wherein the quadrature control signal is applied in alternation to two groups of electrodes that are interleaved between each other.

13. A method according to claim 10, wherein detection gain of electrodes in quadrature is balanced by analyzing the vibration at a frequency twice the resonant frequency in order to determine the real detection gains, and by calculating a balancing coefficient.